Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-13.   (canceled).

Claim 14.   (currently amended) A device for detecting polarization mode dispersion of an optical data signal by evaluating an electrical baseband signal, comprising:

a polarization mode dispersion compensator;

at least one multiplier which calculates a value of an autocorrelation function of the baseband signal by multiplication of a value of the baseband signal by a delayable value of the baseband signal, wherein the value of the autocorrelation function indicates the presence of polarization mode dispersion; and

an averaging device for averaging the calculated value of the autocorrelation function; and

a regulator for controlling the PMD compensator using the autocorrelation function.

Claim 15.   (previously presented)   A device for detecting polarization mode dispersion of an optical data signal as claimed in Claim 14, further comprising:

a delay line with taps, wherein taps with different delays are respectively connected to inputs of the at least one multiplier.

Claim 16.   (previously presented)   A device for detecting polarization mode dispersion of an optical data signal as claimed in Claim 15, wherein two delay lines are provided through which, in a region in which the two delay lines exhibit a mutual assignment via the inputs of the at least one multiplier, the baseband signal runs in opposite directions such that the delays occurring between adjacent multipliers are added to form a delay difference between the adjacent multipliers.

Claim 17.   (previously presented)   A device for detecting polarization mode dispersion of an optical data signal as claimed in Claim 15, wherein two delay lines are provided which, in a region in which the two delay lines exhibit an assignment via the inputs of the at least one multiplier, are traversed in a same direction such that the delays occurring between adjacent multipliers are subtracted from one another to form a delay difference between the adjacent multipliers.

Claim 18.   (previously presented)   A device for detecting polarization mode dispersion of an optical data signal as claimed in Claim 14, further comprising:

a plurality of delay lines of different lengths to whose ends inputs of multipliers are connected.

Claim 19.   (previously presented)   A device for detecting polarization mode dispersion of an optical data signal as claimed in Claim 18, further comprising:

a detour line provided in one of the delay lines.

Claim 20.   (previously presented)   A device for detecting polarization mode dispersion of an optical data signal as claimed in Claim 18, further comprising:

a buffer amplifier in one of the delay lines.

Claim 21.   (previously presented)   A device for detecting polarization mode dispersion of an optical data signal as claimed in Claim 15, wherein delays that occur are equidistant with a constant delay difference.

Claim 22.   (previously presented)   A device for detecting polarization mode dispersion of an optical data signal as claimed in Claim 15, wherein a delay difference is at least approximately equal to a symbol duration of the baseband signal.

Claim 23.   (canceled).

Claim 24.   (currently amended) A device for detecting polarization mode dispersion of an optical data signal as claimed in Claim 2314, wherein the regulator at least approximately maximizes a non-delayed value of the autocorrelation function and adjusts values of the autocorrelation function that are delayed by at least one symbol duration at least approximately to the value zero.

Claim 25.   (currently amended) A device for detecting polarization mode dispersion of an optical data signal as claimed in Claim 14, further comprising:

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a measuring arrangement for measuring a bit error rate in the event of one of an intentionally impaired reception signal and a changed threshold value of a second decision stage, an error signal of the measuring arrangement further controlling the polarization mode dispersion a PMD compensator via a the regulator.

Claim 26.   (previously presented)   A device for detecting polarization mode dispersion of an optical data signal as claimed in Claim 25, wherein the regulator is used additionally for adaptively setting the values of the autocorrelation function that are sought.

Claim 27.   (previously presented)   A device for detecting polarization mode dispersion of an optical data signal as claimed in Claim 14, wherein the multiplier is an EXOR gate.

Claim 28.   (previously presented)   A device for detecting polarization mode dispersion of an optical data signal as claimed in Claim 14, where the multiplier is a Gilbert multiplier.

Claim 29.   (new) A device for detecting polarization mode dispersion of an optical data signal by evaluating an electrical baseband signal, comprising:

at least one multiplier which calculates a value of an autocorrelation function of the baseband signal by multiplication of a value of the baseband signal by a delayable value of the baseband signal, wherein the value of the autocorrelation function indicates the presence of polarization mode dispersion;

a delay line with taps, wherein taps with different delays are respectively connected to inputs of the at least one multiplier, and wherein a delay difference is at least approximately equal to a symbol duration of the baseband signal; and

an averaging device for averaging the calculated value of the autocorrelation function.

Claim 30.   (new) A device for detecting polarization mode dispersion of an optical data signal by evaluating an electrical baseband signal, comprising:

a polarization mode dispersion compensator;

a regulator, communicatively coupled to the polarization mode dispersion compensator

at least one multiplier which calculates a value of an autocorrelation function of the baseband signal by multiplication of a value of the baseband signal by a delayable value of the baseband signal, wherein the value of the autocorrelation function indicates the presence of polarization mode dispersion;

an averaging device for averaging the calculated value of the autocorrelation function; and

a measuring arrangement for measuring a bit error rate in the event of one of an intentionally impaired reception signal and a changed threshold value of a second decision stage, wherein an error signal of the measuring arrangement is used by the regulator to control the polarization mode dispersion compensator.